'Agriahladia - Mesokipi' Wind Farm Complex (total wind power capacity 30 MW) located in Kimis-Aliveriou Municipality, Regional Unit of Evia, Greece

Non-Technical Summary

Introduction

The Agriahladia - Mesokipi wind farm will be constructed and operated by **ENERGIAKI DISTION EVIAS O.E. Company**, which is owned subsidiary of Terna Energy S.A. and is located in Kimis-Aliveriou Municipality of the Regional Unit of Evia, Region of Central Greece and under the Decentralized Administration of Thessaly and Central Greece.

The project refers to the development, construction and operation of two (2) wind farms with installed capacity of 30 MW total, consisting of total 13 wind turbines (9 wind turbines in 'Agriahladia' wind farm and 4 wind turbines in 'Mesokipi' wind farm), along with the accompanying works.

The purpose of the proposed project is to use the high wind potential of the area for the generation of electricity and then to sell the produced energy to the electricity operator.

The Environmental Impact Assessment Study has been elaborated by taking into account the national legislation and particularly Article 4, Law 4014/2011 (OGG 209A/21.09.2011). The approval procedure of the EIAS will also follow all the public consultation procedures according to European and National legislation.

Environmental permitting categorization

With reference to Environmental Permitting Categorization, the project falls under Group 10, item 1: Renewable energy sources/Windfarms, Subcategory A2: 5 < P < 60 MW και L < 20 km, whereby P: wind power capacity, L: length of high voltage transmission line (≥150 kV). Despite the fact that part of the accompanying works is located within an area (GR 2420008), which has been designated as a Special Protection Area (SPA), the capacity does not exceed 30 MW and as a result the final categorization refers to subcategory A2. Therefore, the ESIA is submitted for approval to the Decentralized Administration of Thessaly and Central Greece.

Proposed Project

The two windfarms' proposed main technical characteristics and their accompanying works are the following:

- Installation of two (2) wind farms in the locations 'Agriahladia' and 'Mesokipi' consisting of total 13 wind turbines (9 wind turbines in 'Agriahladia' wind farm and 4 wind turbines in 'Mesokipi' wind farm), with a total installed power output of **30 MW;**

- Road works of **13.266,92 m** in length (both access roads and internal roads) of which 3.319,8 m are improvements of existing roads and 9.947,12 m are new roads.

- Underground medium voltage transmission line to the Step-up Transmission Substation of **10.668,62 m**;

- A **new Step-up Transmission Substation** 150/20KV (EVIA 1- in 'Paliovrisi' location), in a plot of 12,107 m^2, where a building of 250 m^2 will be constructed. The Substation will serve 9 wind farms in the wider project area, including the two wind farms 'Agriahladia' and 'Mesokipi';

- Point/Local road improvement works within the settlement of 'Panagia Almiropotamou' and on the municipal road from Panagia Almiropotamou to the Lepouron - Karystou District Road which serve as the central access route to the windfarms' locations, in order to facilitate the movement of heavy vehicles transporting the wind turbine parts.

Project compatibility with spatial and urban planning commitments

The project and its accompanying works fulfill the criteria, as identified in the Special Framework for Spatial Planning and Sustainable Development for Renewable Energy Sources (OGG 2464B/03.12.2008, Articles 5 and 6).

Environmental impact assessment

The project is not likely to have any impacts on the area's **climate or bioclimatic conditions**.

During construction, the project is likely to have moderate impacts of local extent and partial reversibility on **soil relief and morphology**. More specifically, excavations for the construction of new roads and improvement of existing access roads, the foundation of wind turbines and construction of the Step-up Transmission Substation 150/20KV (EVIA 1) are estimated to be approximately 147,079.26 m^3 and backfilling approximately 146,688.62 m^3. Part of the excess of the excavations will be reused for the restoration of the roads' slopes and the leveling of the area around the wind turbines' foundations, thus producing an excess of approximately 390.64 m^3. The

project's total land take is approximately 146 stremma[1] (including approximately 12 stremma for the Step-up Transmission Substation 150/20KV (EVIA 1). In any case, construction sites will be removed upon completion of construction phase and, to the extent possible, the project area will be rehabilitated to its initial status with reference to soil morphology. The project is not likely to have impacts on soil relief and morphology during operation.

The project is likely to have minor impacts on **landscape and aesthetic environment** during construction, mainly due to construction sites, however these impacts are considered short-term, of local extent and partial reversible, as construction sites will be removed upon completion of the construction phase and on the condition that planting works will take place. With reference to likely impacts during operation, the nearest settlements to the windfarms are Koskina (0.7km), Krieza (0.8km), Distos (3km), Koutoumoulas (3.8km) and archaeological site Distos (1.7km) and therefore due to their adequate distance from the wind turbines, any likely visual impacts are considered minor.

During construction, the project is likely to have minor impact on **water bodies** and negligible impact during operation.

With reference to **vegetation**, the project is likely to have minor impacts on 3 out of 9 vegetation types in the project area. Maximum land take is on Sclerophyllous vegetation which has a common presence in the broad area. The project is not expected to have an impact on any sensitive flora species. Impacts are partially reversible upon implementation of proposed mitigation measures and long-term. Furthermore, to the extent possible, the project area will be rehabilitated to its initial status with reference to vegetation.

With reference to **avifauna**, in the location of the wind turbines mainly common small birds are observed and no significant nesting predators. There are two designation species for SPA GR2420008, *Buteo rufinus* and *Aythya nyroca;* only the former was identified during field works in the protected area which is approx. 4.5 km from the nearest wind turbine. Overall any likely impacts (noise or light disturbances) on avifauna due to project construction and operation are not considered significant; the project is not expected to negatively affect the degree of conservation of birds. Therefore, the Project is not expected to affect the integrity and the conservation objectives of the above mentioned Natura 2000 area, during the construction and operation phases.

With reference to other **fauna**, the project is expected to have moderate impacts of local extent and short duration during construction, mainly due to excavation works; however, the habitats of amphibians, reptiles and mammals are not expected to be significantly affected.

The project is not expected to have any significant likely impacts on existing **land uses**, as its permanent land take is considered small scale; therefore, impacts are

[1] 1 stremma = 1000 m^2

estimated as minor, partially reversible upon implementation of proposed mitigation measures and long-term.

The project is not expected to have any significant likely impacts on the area's **built environment**, as it is situated far from existing settlements and man-made activities.

The project is not situated within designated archaeological sites and therefore no impacts are expected on the area's **historical and cultural environment** during construction or operation. However, prior to construction, the relevant archaeological bodies will be contacted so as to ensure monitoring of works. Should any archaeological findings occur, construction shall cease until completion of excavation works, in accordance with existing legislation.

The project is expected to have positive impacts on the area's **social and economic environment**, as it will create job opportunities during construction and operation. Furthermore, as per existing legislation, the Project is expected to produce a benefit of 278,418 €, most of which will be distributed to Distion and Tamineon Municipal Units for infrastructure, environment, culture and tourism development projects.

The Project is not expected to have any impacts on **human health**, as construction and operation measures are in place to ensure workers' and public safety. The underground medium voltage transmission line only induces magnetic fields, which are minimized and are practically zero within a few meters distance. In any case, the underground medium voltage transmission line and the Step-up Transmission Substation 150/20KV (EVIA 1) will be constructed as per the provisions of relevant legislation, so as to ensure public safety and protection of human health.

The Project is not expected to have any impacts on the area's public **infrastructures**, with the exception of road networks where impacts are expected to be minor, reversible and short-term (during construction).

Any likely impacts on the **atmospheric environment** due to construction works (roads, wind turbines' installation, Step-up Transmission Substation 150/20KV, materials transport) are expected to be minor upon implementation of proposed mitigation measures, of local extent and short-term. Positive impacts on the atmospheric environment are expected during project operation as the production of Energy from wind power has significant benefits on the environment, due to the avoidance of burning fossil fuels which produce greenhouse gases. More specifically, the production of equivalent energy (94.7GWh annually) from fossil fuels (lignite) would result in atmospheric emissions as follows: 113,640 t CO_2, 786.01 t SO_2, 160.99 t NOx, 66.29 t PM. Furthermore, the annual benefit from reduction of CO_2 emissions due to project operation is expected to be approximately 3,409,200.00 €.

The construction of the project is expected to have minor impacts on the **acoustic environment**, upon implementation of proposed mitigation measures, of local extent, reversible and short-term. These impacts are due to the operation of construction vehicles and machinery. During the operation phase, the impacts on the acoustic

environment are due to the operation of wind turbines and are expected to be minor due to the fact that at the nearest settlement (Koskina) which is approximately 0.7 km away from the nearest turbine, the noise levels were estimated to be within allowable limit values. Noise emissions from the Step-up Transmission Substation 150/20KV (EVIA 1) will be in accordance to the limits set by relevant legislation and technical specifications.

Environmental monitoring programme

The monitoring programme will investigate the Project's likely impacts on the environment during both construction and operation phases, emphasizing on impacts from waste production, flora species affected by construction works, and monitoring the progress of the rehabilitation of the affected areas. In order to ensure environmental protection during project construction and operation, the proposed monitoring programme, focuses on the most critical parameters, as identified from the environmental impacts assessment procedure defining also the required frequency of monitoring.